

What is claimed is:

1. A method of treating or preventing a disease associated with an abnormal gastrointestinal flora, said method comprising administering to a patient suffering therefrom an antimicrobial composition effective against the abnormal microorganism
5 in an amount effective for treating said disease, wherein the antimicrobial composition is an antibacterial agent and/or a probiotic agent comprising at least one of the bacterial species that is a normal, benign inhabitant of a human gut.
2. The method of claim 1, wherein said abnormal microorganism is of the
10 genus *Clostridium*, *Bifidobacterium*, *Streptococcus*, or *Lactobacillus*.
3. The method of claim 2, wherein said abnormal microorganism is *Clostridium difficile* or *Clostridium tetani*.
- 15 4. The method of claim 1, wherein said gastrointestinal disease is diarrhea, inflammatory bowel disease, antimicrobial-associated colitis, or irritable bowel syndrome.
5. The method of claim 4, wherein said diarrhea or inflammatory bowel
20 diseases is ulcerative colitis or Crohn's disease.
6. The method of claim 1, wherein said disease is selected from the group consisting of hospital-acquired infection from abnormal bowel flora, juvenile rheumatoid arthritis, multiple-sclerosis, autoimmune disease, Attention Deficit
25 Disorder, Depression, biopolar disorder, Alzheimer's disease, Parkinson's Disease,

Whipple's Disease, Tourette's Syndrome, Asperger's syndrome, Pervasive Development Disorder, early onset autism, regressive autism, Rhett's Syndrome, schizophrenia, obsessive-compulsive disorder, and chronic fatigue syndrome.

5 7. The method of claim 1, where in said disease is a gastrointestinal disease or a central nervous system disorder.

8. The method of claim 7, wherein said central nervous system disorders are selected from the group consisting of Attention Deficit Disorder, Depression, bipolar disorder, Alzheimer's disease, Parkinson's Disease, Whipple's Disease, Tourette's Syndrome, Asperger's syndrome, Pervasive Development Disorder, early onset autism, regressive autism, Rhett's Syndrome, schizophrenia, obsessive-compulsive disorder, and chronic fatigue syndrome.

15 9. The method of claim 1, wherein administration of the probiotic agent follows the administration of the antibacterial agent.

10. The method of claim 1, wherein said probiotic agent is selected from the group consisting of *Bacteroides*, *Prevotella*, *Porphyromonas*, *Fusobacterium*,
20 *Sutterella*, *Bilophila*, *Campylobacter*, *Wolinella*, *Butyrovibrio*, *Megamonas*, *Desulfomonas*, *Desulfovibrio*, *Bifidobacterium*, *Lactobacillus*, *Eubacterium*, *Actinomyces*, *Eggerthella*, *Coriobacterium*, *Propionibacterium*, other genera of non-sporeforming anaerobic gram-positive bacilli, *Bacillus*, *Peptostreptococcus*, newly created genera originally classified as *Peptostreptococcus*, *Peptococcus*,
25 *Acidaminococcus*, *Ruminococcus*, *Megasphaera*, *Gaffkya*, *Coprococcus*, *Veillonella*,

Sarcina, Clostridium, Aerococcus, Streptococcus, Enterococcus, Pediococcus, Micrococcus, Staphylococcus, Corynebacterium, species of the genera comprising the *Enterobacteriaceae* and *Pseudomonadaceae*, and mixtures thereof.

5 11. The method of claim 1, wherein the antimicrobial composition is in the form of a tablet or capsule which is enteric coated.

12. The method of claim 1, wherein the abnormal microorganism produces a toxin or a toxic metabolite.

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13. The method of claim 1, wherein said antimicrobial agent is an antibiotic selected from a group consisting of ABT-773, amoxicillin/clavulanate, aminoglycosides (oral) other than tobramycin, ampicillin/sulbactam, amphomycin ristocetin, azithromycin, bacitracin, buforin II, carbomycin, cephalosporins (oral),
15 cecropin P1, clarithromycin, erythromycins, furazolidone, other nitrofurans, fusidic acid, Na fusidate, gramicidin, glycopeptides, imipenem (oral), other penems, indolicidin, josamycin, linezolid, other oxazolidinones, magainan II, macrolides, metronidazole, other nitroimidazoles, mikamycin, mutacin B-Ny266, mutacin B-JH1140, mutacin J-T8, other bacteriocins, nisin, nisin A, other basic polypeptides,
20 novobiocin, oleandomycin, ostreogrycin, piperacillin/tazobactam, pristnamycin, ramoplanin, ranalexin, other cationic peptides, reuterin, other lantibiotics, rifaximin, other rifamicins, rosamicin, rosaramicin, spectinomycin, spiramycin, staphylornycin, streptogramin, streptogramin A and related compounds, synergistin, taurolidine, other lantibiotics, teicoplanin, telithromycin, ticarcillin/clavulanic acid,
25 triacetyloleandomycin, tylosin, tyrocidin, tyrothricin, vancomycin, vernamycin,

virginiamycin, agents having activity against clostridia and/or other potential neurotoxin-producing microorganisms or microorganisms producing toxic metabolites, and combinations thereof.

5 14. The method of claim 1, wherein the antimicrobial agent is a radionuclide or a bacteriophage.

 15. The method of claim 13, wherein the radionuclide is active against spores of said microorganism.

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 16. The method of claim 13, wherein the bacteriophage is specific for microorganism.

 17. The method of claim 1, wherein the abnormal microorganism is a
15 bacterium.